

EXHIBIT 5

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

WSOU INVESTMENTS, LLC d/b/a
BRAZOS LICENSING AND
DEVELOPMENT,

Plaintiff,

v.

HUAWEI TECHNOLOGIES CO., LTD.
AND HUAWEI TECHNOLOGIES USA
INC.,

Defendants,

Case No. 2:18-cv-00544-ADA

JURY TRIAL DEMANDED

**DECLARATION OF JAMES A. PROCTOR
REGARDING CLAIM CONSTRUCTION**

I. INTRODUCTION

1. My name is James A. Proctor, and I have been retained as a technical expert by counsel for Defendants Huawei Technologies Co., Ltd. and Huawei Technologies USA Inc. (collectively, “Huawei” or “Defendants”) to address certain issues concerning U.S. Patent No. 8,429,480 (the “’480 Patent”) that has been asserted against Huawei by WSOU Investments, LLC D/B/A Brazos Licensing and Development (“WSOU” or “Plaintiff”). Unless otherwise stated, the matters contained in this Declaration are of my own personal knowledge and, if called as a witness, I could and would testify competently and truthfully with regard to the matters set forth herein.

2. My opinions are based on my years of education, research and experience, as well as my investigation and study of relevant materials. A list of materials considered is included in **Exhibit A** to my declaration.

3. I may rely upon these materials, my knowledge and experience, and/or additional materials in forming any necessary opinions. Further, I may also consider additional documents and information to rebut arguments raised by Plaintiff. I reserve any right that I may have to supplement this declaration if further information becomes available or if I am asked to consider additional information. Furthermore, I reserve any right that I may have to consider and comment on any additional expert statements or testimony of Plaintiff’s experts, if any, in this matter.

4. My analysis of the materials produced in this investigation is ongoing and I will continue to review any new material as it is provided. This declaration represents only those opinions I have formed to date. I reserve the right to revise, supplement, and/or amend my opinions stated herein based on new information and on my continuing analysis of the materials already provided.

5. I am being compensated at my usual consulting rate of \$450 per hour for my time

spent working on issues in this case. My compensation does not depend upon the outcome of this matter or the opinions I express.

II. QUALIFICATIONS

6. I am qualified by education and experience to testify as an expert in the field of telecommunications. Attached as **Exhibit B** to this declaration is a copy of my curriculum vitae detailing my education and experience. Additionally, the following overview of my background pertains to my qualifications for providing expert testimony in this matter.

7. I have worked as an engineer and entrepreneur in the field of wireless communications for over 25 years, and have been involved with various aspects of wireless communications for the duration of my career.

8. I am currently a named inventor or co-inventor on more than 300 issued U.S. patents. A list of granted U.S. patents is included in my curriculum vitae. A number of these patents are related to the subject matter of the '480 Patent. As an example of some of my experience, the selected patents are related to aspects of the '480 Patent.

U.S. Pat. No.	Title	Priority date
6,888,807	Applying session services based on packet flows	6/10/2002
9,014,118	Signaling for wireless communications	6/13/2001
9,913,271	Qualifying available reverse link coding rates from access channel power setting	2/23/2001
9,686,713	Application specific traffic optimization in a wireless link	2/5/2001
10,153,885	Alternate channel for carrying selected message types	2/1/2001
8,072,944	Staggering forward and reverse wireless channel allocation timing	10/19/2000
9,936,500	Transmitting acknowledgement messages using a staggered uplink time slot	10/19/2000
9,832,664	Receiving and transmitting reverse link signals from subscriber units	7/19/2000
9,781,626	Wireless channel allocation in a base station processor	5/5/2000
6,545,994	Access probe acknowledgment including collision detection to avoid oversetting initial power level	2/23/2000

9. For these reasons and because of my technical experience and training as outlined below, I believe I am qualified to offer technical opinions regarding the '480 Patent.

10. A substantial portion of my work has been focused on wireless communication systems and products. For example, my educational background includes a BSEE from the University of Florida (1991), and a MSEE from the Georgia Institute of Technology (1992) focusing on digital signal processing and communications.

11. From 1986 to 1991, while at the University of Florida, I interned with Harris Corporation in various roles including mechanical design, software development, and digital design. From 1991 to 1992, while at the Georgia Institute of Technology, I worked at the Georgia Tech Research Institute (GTRI) as a graduate research assistant, performing software development on classified government programs.

12. From 1993 to 1995, while working for Harris Corporation, I designed various cellular communications systems for voice, data, and tracking/location. Many of the systems I designed utilized advanced communications technologies, such as those utilized in the then-developing and future telecommunication standards (such as IS-95, W-CDMA, and aspects of LTE).

13. From 1995 to 1998, I worked at Spectrian Corporation in advanced development and technical marketing. At Spectrian, I interfaced with Nortel's and Qualcomm's product management team and performed advanced technology development and systems analysis. In this role, I designed IS-95 CDMA and GSM base station power amplifiers and control electronics, and received several patents associated with advanced linearization techniques for the reduction of transmitted distortion.

14. From 1998 to 2002, I served as the Director of Strategic and Technical Marketing

at Tantivy Communications, a venture capital-funded 3G cellular data and chip set company. At Tantivy, I helped to design and standardize the I-CDMA Spread Spectrum Systems Air Interface Standard (T1P1.4). I also developed both subscriber units and base stations that complied with the standard. The base stations utilized various IP protocols, and interfaced with the wire line network utilizing IP over Ethernet. Additionally, I participated in and provided technical contributions to 3GPP/3GPP2 standardization efforts related to the development of CDMA2000 and 1xEV-DO. This work resulted in my being named as a co-inventor on more than 150 pending or issued U.S. patents.

15. From 2002 to 2007, as co-founder of WiDeFi, Inc., I served in various roles including President, CEO, CTO, and board member. As the CEO, my responsibilities included advanced development of platform technologies. I was co-inventor of wireless technology components, including a frequency translating TDD repeater, a same frequency repeater architecture for TDD/FDD-based systems, and physical layer multi-stream MIMO repeater technology. WiDeFi invented and provided wireless home networking products based on WiFi and cellular technologies. While at WiDeFi, I was named as an inventor on over 25 issued U.S. patents or patent applications.

16. From 2007 to 2009, I consulted as a principal engineer for Qualcomm, Inc. as part of the acquisition of WiDeFi's technology. While at Qualcomm, I worked with its corporate R&D division and developed consumer 3G and 4G cellular coverage enhancement. My responsibilities included working with international cellular operators on product requirements, detailed W-CDMA simulations, Long Term Evolution ("LTE") systems analysis, and participating in prototype product realization. I am currently a named inventor on roughly 45 issued U.S. patents or patent applications assigned to Qualcomm.

17. From 2010 to the present, I served as managing director and co-founder of Proxicom Wireless, LLC, which developed and continues to develop cloud-based, mobile social networking and mobile payment technology based upon the proximity and location of mobile devices. Proxicom currently holds twelve issued U.S. patents and multiple pending patent applications, of which I am named as a co-inventor. Significant aspects of Proxicom's technology involve a mobile device's use of short range wireless technologies (802.11, near field communications, Bluetooth) in combination with cellular data links (3G/WCDMA or 4G/LTE, for example) to facilitate frictionless interactions via a wireless networked central cloud server.

18. Since 2007, I also have been the principal of Proctor Consulting, LLC. In this role, I am a consultant relating to wired, wireless, and cellular communication and technologies, start-up companies and intellectual property. I am also involved with numerous patent infringement, patent validity, and patent analysis assignments for public and private companies in the wired, wireless, and cellular networking industries.

19. Additionally, I have worked and consulted for both cellular infrastructure and device focused companies (Spectrian, Qualcomm, Fastback Networks), and defense contractors (Harris Corporation), where I developed covert-tracking and location technologies involving CDMA and smart-antenna technologies.

20. A complete list of cases in which I have testified at trial, hearing, or by deposition within the preceding four years is provided in my curriculum vitae, which is attached as **Exhibit B** to my declaration.

21. Based on my education and experience, I believe I am qualified to render the opinions set forth here.

III. LEVEL OF ORDINARY SKILL IN THE ART

22. I have been asked to offer my opinion regarding the level of ordinary skill in the art with respect to the '480 Patent.

23. In my opinion, with regard to the '480 Patent, a person of ordinary skill in the art would have had at least a Master's degree in computer science, computer engineering, electrical engineering, or a related field, with 3-5 years of experience in wireless communication systems. This description is approximate, and a higher level of education or skill might make up for less experience, and vice-versa.

IV. SCOPE OF OPINIONS

24. I have been asked to provide certain opinions regarding claim construction. I have been asked to provide my opinions regarding the meaning of certain disputed claim terms as understood by one of ordinary skill at the time of the invention. My opinions are based on my understanding of what the disputed claim terms and proposed construction were, and what the evidence relied upon by the parties was, as of the time that I executed this Declaration.

V. LEGAL STANDARDS RELIED UPON

25. Certain legal principles that relate to my opinions have been explained to me.

26. I understand that ultimately the Court will determine the matter of how specific terms shall be construed. The intent of this Declaration is to help inform the Court how a person of ordinary skill in the art ("POSITA") would understand the meaning of certain disputed claim terms in the context of the '480 Patent. I understand that in district court litigation patent claims are generally given the meaning that the terms would have to a POSITA in question as of the earliest claimed priority date. It is my understanding that a patentee can decide to act as a lexicographer by explicitly defining terms to have specific meaning within the bounds of the patent

specification. It is my understanding that statements made to the patent office by the patentee or their legal representative during prosecution can serve to illuminate, or possibly narrow the proper scope of claim terms, and such statements must be considered when one searches for the appropriate claim construction. This is sometimes referred to as disclaimer. I have endeavored, to the best of my ability, to take into account all of these factors during the process of my analysis.

27. I understand that a claim is indefinite if, when read in light of the specification and its prosecution history, the claim fails to inform, with reasonable certainty, a POSITA about the scope of the claimed invention.

28. I understand that a patent may include both independent and dependent claims. I understand that a claim in dependent form must contain reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form must be construed to incorporate by reference all the limitations of the claim on which it depends. A dependent claim that fails to further limit the subject matter of the claim(s) upon which it depends, or that contradicts the claim(s) from which it depends, is invalid.

VI. BACKGROUND

A. Overview of the '480 Patent

29. The '480 Patent generally relates to “wireless communication systems, methods, devices and computer program products.” '480 Patent, 1:14-15. More specifically, it discloses techniques in the context of E-UTRAN (evolved Universal Terrestrial Radio Access) systems — commonly referred as LTE (4G Long Term Evolution) systems. '480 Patent, 1:58-63. I understand that the earliest possible priority date of the '480 Patent is October 5, 2007.

30. The '480 Patent focuses on the problem of collisions that may occur between scheduled allocations for transmissions of different packets from one user equipment (“UE”) to a

base station (“eNB” or “eNodeB”). *See* ’480 Patent, Abstract and Figs. 2-3. Specifically, the collisions may occur between a new transmission of packets (e.g., Voice over Internet Protocol (“VoIP”) packets) as persistently or semi-persistently allocated and a hybrid automatic repeat request (“HARQ”) re-transmission of packets. ’480 Patent, Figs. 2-3 and 2:27-32. To resolve this problem, the ’480 Patent proposed techniques for “performing UE [] specific load balancing among HARQ processes, in particular for the case of semi-persistent scheduling the LTE TDD UL.” ’480 Patent, 6:30-35. In particular, “the re-transmission packet is transmitted during the time at which a collision would occur, and the new transmission packet is dynamically scheduled to a new resource in another, different HARQ process.” ’480 Patent, 6:40-43 and Fig. 3.

31. I note that reference with regard to the teachings of the invention of the ’480 Patent is made to 3GPP Standards documents, including but not limited to 3GPP TS 36.300 v8.1.0 (2007-06), “Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall Description Stage 2 (Release 8)” (“TS 36.300”), 3GPP TS 36.321 v8.2.0 (2008-05), “3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Access Network (E-UTRAN); Medium Access Control (MAC) protocol specification (Release 8)” (“TS 36.321”), and 3GPP TS 36.213 v8.3.0 (2008-05), “3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Access Network (E-UTRAN); Physical layer procedures (Release 8)” (“TS 36.213”). ’480 Patent, 1:64-2:3 and 4:54-5:59. In addition, regarding the VoIP scheduling, the ’480 Patent also makes reference to a 3GPP meeting document, R2-070476, 3GPP TSG-RAN WG2 Meeting #57, 12-16 Feb. 2007, St. Louis, Miss., USA, “Uplink

Scheduling for VoIP” (“R2-070476”). ’480 Patent, 2:33-38.

B. Various Ways of Resource Allocation/Scheduling

32. E-UTRAN systems include base stations/eNBs and UEs that communicate over-the-air to deliver services to end users. *See Exhibit C*, 3GPP TS 36.300, 12-13. The eNBs are also connected with EPC (Evolved Packet Core), including MME (Mobility Management Entity) and S-GW (Serving Gateway), and provide functions for radio resource management, such as radio bearer control, radio admission control, connection mobility control, and dynamic allocation/scheduling of resources to UEs in both uplink and downlink. *See Exhibit C*, 3GPP TS 36.300, 12-13.

33. The eNB is mainly responsible for coordinating downlink and uplink transmissions with a functional unit referred to as the “MAC (medium access control) scheduler.” *See Exhibit C*, 3GPP TS 36.300, 29. In the uplink, the MAC scheduler schedules and allocates uplink resources, including PRBs (physical resource blocks) and MCS (modulation and coding scheme), to one or more UEs, which are then used to carry uplink transmission data to the eNB from the one or more UEs. *See Exhibit C*, 3GPP TS 36.300, 28-29, 56.

34. With respect to allocating/scheduling resources for VoIP service, the ’480 Patent cites R2-070476, which describes several ways of resource allocation/scheduling for uplink VoIP transmissions in LTE. ’480 Patent, 2:33-38. Those ways include “dynamic scheduling,” “persistent scheduling,” and “semi-persistent scheduling.” *See Exhibit D*, R2-070476, 1-3. In dynamic scheduling, “the UE sends a resource request in UL for every VoIP packet . . . Node B allocates UL resource for every VoIP packet separately and for every retransmission separately” by L1/L2 control signalling, and, therefore “[d]ynamic scheduling of each VoIP packet/transmission is naturally most flexible from the scheduling and UL resource usage point of view but also requires most signalling.” *Exhibit D*, R2-070476, 1. In persistent scheduling,

“RRC signalling would be used to allocate a time/frequency resource (localized or distributed) as well as a fixed modulation scheme to a VoIP user.” **Exhibit D**, R2-070476, 2. The advantage of this way is to significantly reduce the overhead of L1/L2 control signalling. *See* **Exhibit D**, R2-070476, 2. However, it may result in inefficient use of uplink resources. *See* **Exhibit D**, R2-070476, 2. As a middle ground, in semi-persistent scheduling, “the persistent allocation is done separately for each talk spurt.” **Exhibit D**, R2-070476, 3. In particular, “[w]hen a talk spurt starts, the UE should send a resource request, then the radio resource is allocated to the UE and when the talk spurt ends, the resource is released . . . Thus the released resource can be allocated to some other VoIP user.” **Exhibit D**, R2-070476, 3.

35. TS 36.213 and TS 36.321 recognize the distinct ways of resource allocation/scheduling as described in R2-070476. For example, TS 36.213 provides that the PUCCH (Physical Uplink Control Channel) resources for transmissions of HARQ-ACK are determined in different ways for “dynamically scheduled” and “semi-persistently scheduled” PDSCH (Physical Downlink Shared Channel) transmissions as received. *See* **Exhibit E**, TS 36.213, 42-43. As a further example, TS 36.321 teaches that a SPS C-RNTI (Semi-persistent Scheduling Cell Radio Network Temporary Identifier) shall be used for semi-persistent scheduling/allocation of resources. *See* **Exhibit F**, TS 36.321, 18.

36. The distinct ways of resource allocation/scheduling as described in R2-070476 are in harmony with those as provided by TS 36.300. TS 36.300 also states that in the uplink, E-UTRAN can either “dynamically allocate resources (PRBs and MCS) to UEs at each TTI via the C-RNTI on L1/L2 control channel(s)” or “allocate a predefined uplink resource for the first HARQ transmissions and potentially retransmissions to UEs.” **Exhibit C**, TS 36.300, 56.

VII. DISPUTED CLAIM TERMS

A. “the resources are persistently allocated for transmitting the new uplink packet transmission” (claim 2)

37. In my opinion, a POSITA at the time of the patent reading dependent claim 2 would not be able to determine the meaning of “the resources are persistently allocated for transmitting the new uplink packet transmission” in view of independent claim 1, which requires “the hybrid automatic repeat request function dynamically allocating resources for transmitting the new uplink packet transmission.” This is due to the fact that the same resources cannot be “dynamically” and “persistently” allocated for transmitting the same new uplink packet transmission, as dynamically and persistently allocating resources are two separate and distinct ways of resource allocation/scheduling as stated above. *See* ¶¶ 34-36.

38. The disclosures in the specification of the '480 Patent are in harmony with the description of the distinct ways of resource allocation/scheduling as discussed above in 3GPP Standards and related documents. *See* ¶¶ 34-36. For example, the specification states “[s]emi-persistent scheduling has also been agreed to for use in LTE, in particular for VoIP service, wherein initial/new transmissions of voice packets are persistently allocated (a set of resources in every 20 ms are predefined) and re-transmissions of packets are dynamically scheduled by Layer 1/Layer 2 signaling.” '480 Patent, 2:27-32 and 7:7-11 (“It can be further noted that only a new transmission that has collided with a re-transmission need be dynamically scheduled to another HARQ process, as other new transmissions can occur in the persistent fashion in process #1 if the loading in HARQ process #1 is reasonable.”).

39. In my opinion, the specification provides no disclosures regarding how to “dynamically” and “persistently” allocate the same resources for transmitting the same new uplink transmission in response to a collision as required by claims 1 and 2.

40. The same issue was also raised during the prosecution of a European (“EP”) counterpart patent application to the ’480 Patent (“EP Patent”)¹. Claim 2 in EP Patent is substantially the same as claim 2 in the ’480 Patent (before it was revised during EP prosecution as shown below). Claim 1 in EP Patent requires “in response, a hybrid automatic repeat request function dynamically allocating resources for transmitting the new uplink packet transmission (3A-3E) in a different hybrid automatic repeat request process that does not collide with the uplink packet re-transmission (3B)” (before it was revised during the prosecution history), which is also substantially the same as the corresponding claim limitation in claim 1 of the ’480 Patent. **Exhibit G**, “EP Appl. No. 08835383.4, 02/05/2011 Response to Communications” at Amended Claims.

41. The EP examiner stated that “they refer to ‘persistently allocating’ resources, which have been defined to be ‘dynamically allocated’ in the independent claim on which they depend. There appears to be a contradiction, as dynamically and persistently are mutually exclusive.” **Exhibit H**, “EP Appl. No. 08835383.4, 01/19/2011 Communications from Examining Division” at 2. In response, the patent applicants revised claim 2 to clarify that “the persistent allocation is for the re-transmissions and takes place only after the hybrid automatic repeat request function has dynamically allocated the new resources to the new uplink packet transmission.” **Exhibit G**, “EP Appl. No. 08835383.4, 02/05/2011 Response to Communications” at 3 (excerpt of claim amendments as reproduced below).

¹ EP Application No. 08835383.4 (later granted as EP Pat. No. 2201717).

2. The method according to claims 1, wherein the resources for the re-transmissions of the new uplink packet transmission (3E), whose transmission has been delayed, are persistently allocated ~~for transmitting the new uplink packet transmission (3A, 3E)~~ in the different sub-frame corresponding to the different hybrid automatic repeat request process.

42. As shown above, (1) the patent applicants acknowledged the conflict between claims 1 and 2, and (2) understood that persistent and dynamic allocations are distinct by stating that resources for transmitting the new uplink packet transmission are dynamically allocated, but its re-transmissions are persistently allocated.

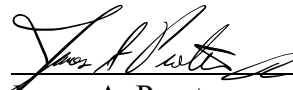
43. Accordingly, in my opinion, since dynamic and persistent allocations are two mutually exclusive ways of resource allocation, “the resources” that have been dynamically allocated for transmitting the new uplink packet transmission as required by claim 1 in the ’480 Patent cannot be further limited by being persistently allocated as required by claim 2.

44. Further, since claim 2 depends from claim 1, I understand that claim 2 requires, detecting with a hybrid automatic repeat request function a collision between an uplink packet re-transmission and a new uplink packet transmission within a hybrid automatic repeat request process; and

in response, the hybrid automatic repeat request function dynamically allocating resources for transmitting the new uplink packet transmission in a different hybrid automatic repeat request process that does not collide with the uplink packet re-transmission, wherein the resources are persistently allocated for transmitting the new uplink packet transmission in the different hybrid automatic repeat request process.

45. In my opinion, a POSITA cannot ascertain whether “the resources” in claim 2 are dynamically or persistently allocated in response to a collision because as detailed above, dynamic and persistent allocations are two distinct ways of scheduling/allocation of resources. As such, it is my opinion that claim 2 is invalid.

I declare under penalty of perjury that the foregoing is true and correct. Executed this 5th day of March, 2021.



James A. Proctor